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THE INCIDENCE OF *B. TUBERCULOSIS* AND *BR. ABORTUS* IN THE HERD MILKS SUPPLIED TO A SMALL CITY

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The extensive use of the biological test for the detection of tubercle bacilli in milk has, in recent years, afforded much information as to the contamination of the milk supply of this country. Its practice has been confined, more or less, to the supplies of large cities and large urban populations. Since the milk entering these areas is frequently much bulked, the results give little information as to the frequency of infection in individual herd samples.

For these reasons it is of particular interest to record the results of a survey of the milk supply of a small city (Bangor, Cærnarvonshire), in which survey it was possible to test twice in twelve months a sample from each contributing herd.

In view of the importance attached by some to infection of raw milk with *Br. abortus*, advantage was taken of this opportunity to determine the number of herds whose milk contained that organism.

The City of Bangor has a population of 10,900 and draws its supplies chiefly from farms located in the immediate vicinity. In the great majority of cases the producer is also the retailer and, since the farms are generally small, the number of herds contributing to the supply is large. During the year April, 1931—March, 1932, there were 57 herds producing ordinary or "Grade A" milk for sale within the City. Five of these supplies were of a temporary nature and were tested only once, while the 52 remaining supplies were tested on two occasions. Of these 57 producers, 27 possess a herd of under 11 cows, 24 possess between 11 and 20 cows and six possess more than 20 cows. The total number of milk-cows in these herds is, approximately, 700. Samples were not taken from the three "Grade A (T.T.)" herds whose milk is sold in the City.

The survey continued throughout a period of twelve months, the interval between the two samples being approximately six months. Every care was taken to get a sample thoroughly representative of *all* the milk produced on the farm. A pint sample was obtained; a proportion from each churn where the supply was not already bulked.

On receipt at the laboratory, the sample was thoroughly mixed and 100 c.c. centrifuged for half-an-hour at 3,000 r.p.m. The deposit was emulsified in 1 c.c. of sterile saline and half of this injected subcutaneously into the inner aspect of the left thigh of each of two guinea-pigs. At weekly intervals the pigs were weighed and clinically examined for local reaction (enlargement of local glands and abscess formation). The appearance of a suggestive local lesion was taken as justification for the immediate *post-mortem* examination of one of the pigs. In its absence one pig was killed six weeks after inoculation. Where no evidence of tuberculosis had been obtained by this time the second pig was kept alive until the eighth week.

At the *post-mortem* examination a blood sample was taken from the heart and the serum tested for the presence of *Br. abortus* agglutinins.

Of the 109 milk samples taken to complete this survey, 3 (2.7 per cent.) contained tubercle bacilli and 18 (16.5 per cent.) contained *Br. abortus*. It is noteworthy that these three positive samples were obtained during the second half of the survey; each supply having been sampled and reported negative six months earlier.

The writer was given facilities to follow up the tuberculosis-positive results by a farm visit in company with the owner's veterinary attendant or the veterinary inspector of the district. Clinical examination of the cows brought one animal in each herd under suspicion as affected with tuberculosis of the udder.

Microscopical examination of milk drawn from the affected quarter of two of the three cows showed acid-fast organisms having the morphology of tubercle bacilli and the cell-grouping typical of tuberculous milk. These two cows, calved not more than five months, were dealt with under the Tuberculosis Order.

In smears from the milk of the third suspected cow, acid-fast organisms not typical of tubercle bacilli were seen on microscopical examination. A sample of the milk of this cow and a composite sample obtained from the other cows in the herd were separately submitted to the biological test and in each case the result was negative. In view of this failure to detect a cow affected with tuberculosis of the udder or giving tuberculous milk, another composite sample was tested biologically, as also were samples from each of two other small herds, all this milk being retailed by the one person. These tests were negative and very thorough enquiries failed to detect the source of contamination of the original sample. It seems

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of special interest to add that of the two guinea-pigs in the original test, the one killed at six weeks showed no evidence of tuberculosis and the eight weeks' pig only a very small local gland lesion containing typical acid-fast organisms. The milk of the two herds in which cows affected with tuberculosis of the udder were detected was resampled after the offending cows had been dealt with under the Tuberculosis Order. Biological test of these samples gave a negative result.

It will therefore be seen that, although three samples were positive to the biological test, tuberculosis of the udder was only shown to exist in two (3.5 per cent.) of the 57 herds. If the number of cows in these herds is taken as 700, the incidence of udder infection was ·29 per cent.

Summary

(1) During the year April, 1931—March, 1932, the milk supply of the City of Bangor was examined as to the prevalence of tuberculous infection and of *Brucella abortus* infection.

(2) Each producer's milk was separately examined for these infections by the biological test. The 52 regular supplies were examined twice at an interval of six months and the five temporary supplies on one occasion, there being approximately 700 cows in these herds.

(3) Of the 109 samples submitted to test three (2·7 per cent.) contained tubercle bacilli and 18 (16·5 per cent.) *Brucella abortus*.

(4) After the elimination of a cow affected with tuberculosis of the udder from each of two of the farms supplying infected milk, the biological tests of a herd sample of each supply were negative. In the remaining herd, despite repeated examinations and tests, no animal showing tuberculosis of the udder or giving tuberculous milk was detected.

(5) During the year tuberculosis of the udder was shown to exist in 3·5 per cent. of the herds; in ·29 per cent. of the cows.

Acknowledgment.—Mr. T. Rogers Jones, City Sanitary Inspector, was responsible for the collection of the samples, and the successful completion of this survey is in no small measure due to his enthusiastic co-operation.

FOOT-AND-MOUTH DISEASE IN SOUTH AFRICA

It is reported that the assistance of soldiers has been invoked to help in forming a cordon round the districts affected by an outbreak of foot-and-mouth disease at Ramathlama, 16 miles from Mafeking, in the north-west corner of the Union. The outbreak is being met with the most vigorous measures, in which the Administrations of the Union, Southern Rhodesia, and Bechuanaland are co-operating.

Reinforcements of mounted and camel police were immediately dispatched to the affected area.

. . . . .

The Ministry of Agriculture have made orders prohibiting the landing in Great Britain or ruminating animals and swine, and hay and straw, brought from the Union of South Africa, including the mandated territory of South-West Africa.

Report

MILK REORGANISATION COMMISSION*

The Report of the Milk Commission appointed under the Agricultural Marketing Act, which was issued on February 6th, and to which we made preliminary reference in our last issue, marks a most important stage in the process of agricultural reorganisation. We comment elsewhere on the significance of this report in its relation to veterinary public health, and give below extracts from those sections which are of particular interest and moment to members of the veterinary profession. The report is primarily of commercial concern, however, and from this aspect it should be said that the Commission contemplates a pooling type of scheme to equalise the burden of the production which is in excess of the requirements of the liquid milk trade and which goes into manufacture at a low price. It is proposed that a Central Producers' Board should be set up, with 12 regional committees elected by registered producers. The Board, it is recommended, should exercise close control over the dealings of its registered producers and should assume ownership of all milk sold off farms, other than that retailed direct by producers. The Commission suggests that this can be effected by means of contracts into which the Board enters as an intermediary between the producer and the buyer of milk. A levy on all registered producers would be required to provide funds for those regional pools which are responsible for a high proportion of manufacturing milk.

Recommendations are also made for premiums to be paid to producers who undertake the supply of milk of the highest quality and for the regular veterinary inspection of dairy herds so as to give the public full confidence in the purity of the milk supply. It is further proposed that arrangements should be made for a statutory board, representative of dairymen and manufacturers, and that a Joint Milk Council should be established to fix regional contract prices and provide for the co-operation of both parties in matters of common concern under an impartial chairman.

The Commission, which was appointed by the late Minister of Agriculture, Sir John Gilmour, consists of Sir Edward Grigg (Chairman), Professor A. W. Ashby, Mr. F. N. Blundell, Mr. A. E. Cutforth and Major-General Sir Philip Nash. The terms of reference were to prepare, in accordance with the provisions of the Agricultural Marketing Act, 1931, a scheme or schemes, applicable in England and Wales, for regulating the marketing of milk. These terms have been broadly interpreted by the Commission. The re-

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port includes a brief review of the present position of milk marketing, historical and statistical material with regard to the industry, and references to the situation as to imports and the law as it affects milk.

Consumption of Milk.—In the chapter (IV) devoted to the consumption of milk and the interests of the consumer, it is stated that, although the statistical data relating to the consumption of liquid milk in this country are extremely meagre, the general indications are, firstly, that the daily *per capita* consumption of milk in this country falls between one-third and two-fifths of a pint, and secondly, that the total requirements of the liquid market of England and Wales in 1931 amounted to between 607 and 730 million gallons. There is evidence to show that the recent trend of consumption is downward rather than upward. In this connection the Commissioners say:—"The criticisms of the milk supply that are frequently made by certain members of the medical profession cannot fail to exercise a deterrent influence on any expansion of milk consumption. The public is repeatedly alarmed by statements that milk is 'unsafe' unless it is treated by heat, by statements that when it is treated by heat its nutritive value is impaired, and by reports of outbreaks of disease said to be due to milk-borne infection. Assertions that milk is an unsafe food are based mainly on the occurrence of living bovine tubercle bacilli in a percentage of samples of milk taken in the course of delivery to the public, and on the known high incidence of tuberculosis among dairy herds in this country. The impression on the public mind is strengthened by the insistent advertising of individual retailers that the milk they themselves deliver is 'safe,' the obvious inference being that other milk is unsafe.

"Propaganda on the part of the medical profession may have little effect on ordinary purchases of milk for addition to tea or for cooking, but it is probably instrumental in deterring many parents from giving milk to their children to drink. It is in just this sphere that there is the greatest need and the greatest scope for increased milk consumption, and it is evident that the closest attention should be given to the question of setting up a hygienic standard capable of application to a large proportion of the total supply of milk offered to the liquid market. If a standard can be established that commands the support of the medical profession, one of the greatest deterrents to an increase of milk consumption will have been removed."

LACK OF UNIFORMITY IN ADMINISTRATION

The law as it affects milk is reviewed in Chapter VI, in the course of which the following passages occur:—

"Although the Milk and Dairies Order lays down that it is the duty of the Councils of Counties and County Boroughs to cause such inspection of cattle to be made as may be necessary and proper for the purposes of the Act, the authorities concerned have taken very different views of what is necessary and proper. In many counties, there is no routine inspection at all, and farms are only visited by the Veterinary Inspectors where there exists a definite suspicion that milk-borne infection is traceable to them. In other cases, the authority has instituted regular clinical inspection of dairy cattle at varying intervals by whole-time or part-time inspectors. In a few of these cases, this routine inspection is carried out as often as four times a year.

"In this connection, it is of interest to observe that routine clinical inspection, at least once every year, is compulsory in Scotland under Sec. 4 (2) of the Milk and Dairies (Scotland) Act, 1914. The Scottish Board of Health has recommended local authorities to increase the frequency of routine inspection beyond the obligatory minimum to three times a year. Several counties have given effect to this recommendation, and others arrange inspections twice yearly. The following table relating to England and Wales summarises the position in Counties and in such Boroughs as have administrative powers under the Diseases of Animals Acts:—

Areas.	Staff	Cow and Heifer Population.
(i) *Routine Inspection by Whole-time Veterinary Officers.*		
6 Counties	26	311,617
25 Boroughs	38	27,920
(ii) *Routine Inspection by Part-time Veterinary Officers.*		
8 Counties	64	237,588
85 Boroughs	94	30,044
(iii) *No Routine Inspections.*		
45 Counties	—	2,073,137
84 Boroughs	—	27,448

Note.—The County of Nottingham, where a dual system of clinical inspection and herd milk-sampling is operated, is excluded from the above table.

The six counties in which routine inspection by whole-time Veterinary Officers is in force are Cumberland, Durham, Middlesex, Surrey, Yorks., North Riding, and Yorks., West Riding.

"In consequence of these varied views, the Milk and Dairies Order is enforced—where it is enforced at all—with a striking want of uniformity. In some districts, the majority of the farmers remain in blissful ignorance that any inspection can take place. This lack of uniformity in adminstration is not confined to that part of the Order which is entrusted to the larger authorities. There is plenty of evidence of anomalies arising under the other part, although the urban sanitary authorities have generally carried out their duties with considerable zeal. Some of these

anomalies are caused by the nature and wording of the Order itself. General phrases must necessarily be employed because it is impracticable to define on paper the amount of light, for instance, which is desirable in a cowshed. Nevertheless, there is often a variety of interpretation by no means justified by vagueness of phrase. In such cases, variations of interpretation are chiefly caused by want of proper training of the sanitary inspectors for this part of their duties. They do not know how much light a milker needs and they do not know how far it is reasonable to insist on alterations to buildings. We have been informed of cases of real hardship inflicted on the owners and occupiers of farms by the too rigid attitude of inspectors without adequate knowledge of their business. On the other hand, in more remote districts, it is notorious that very half-hearted attempts at compliance with the Order pass muster.

"While we have no particular criticism to make of the administration of the Tuberculosis Order, it is clear that it cannot be carried out effectively without an adequate staff of Veterinary Inspectors. This Order and the Milk and Dairies Order are complementary to one another. This is clearly indicated by the covering letter* of the Ministry of Health to local authorities when issuing the Milk and Dairies Order, in which attention is called to the convenience and economy of having the same veterinary surgeons available for the administration of both Orders. It follows that imperfect administration in one case involves to a large extent the same weakness in the other."

THE MILK GRADES NOMENCLATURE CONFUSION

After detailing the main provisions of the Milk (Special Designations) Order, 1923, the report states that the number of licences granted for each grade has increased steadily since the scheme was first introduced, but that the total number of farms in England and Wales licensed on March 31st, 1932, for the production of any of the three grades was only 1,105. "There is no doubt as to the high standard of hygienic quality reached by the producers of 'Certified' and 'Grade A (T.T.)' milk. The same may be said of the great majority of the producers of 'Grade A' milk. The industry and the consumers generally owe a debt of gratitude to the pioneers who have faced the difficulties and discouragements necessarily incidental to a new development. The educational effect of the grading scheme has extended far beyond the limited number of licences, and has set a standard for all progressive producers. It is not too much to say that the recent improvement in the hygienic quality of milk, of which we have had abundant evidence, is in no small degree due to the scheme."

* Ministry of Health Circular No. 711.

The Commissioners continue:—"We have, however, been impressed by the weight of the evidence from all sides—producers, distributors, consumers and members of the medical and veterinary professions — indicating that the nomenclature of the official grades of milk is complicated and confusing. It has been suggested, and we are disposed to agree, that the designations do not indicate clearly the order of merit in which the three grades should be placed. It would, in fact, be true to say that persons not fully conversant with the conditions prescribed are quite frequently under the impression that 'Grade A' is milk of the highest quality because the title contains no qualification, 'Grade A (T.T.)' of lower quality by virtue of the qualification added to the previous designation, and 'Certified' the lowest of the three grades. The proper order is thus completely reversed.

"We understand that the present nomenclature is, in part, a survival of war-time control. Designations were then introduced to distinguish milk of high hygienic quality in order that producers of such milk might be authorised to charge higher prices than those permitted by the Milk (Prices) Order then in force. Subsequent developments of the grading system were to some extent hampered by the existence of goodwill values in the designations already in use, and to this may be attributed, in part, the present confusion. 'Grade A,' now the lowest of the special grades, was originally the highest, and is still widely regarded as such. It is not unnatural that those at present selling milk under this designation have a sense of vested interest with which they desire no interference.

"The lack of clarity in the present grade designations results in a further evil. It enables retailers to induce the public to pay some regard to unofficial titles, such as 'nursery milk,' 'invalid milk,' and other expressions which may be applied to milk having no special hygienic quality at all, and which only serve to make confusion worse confounded. Within these misleading titles we do not include names indicating definite processes, such as 'sterilized milk,' 'homogenized milk,' 'irradiated milk' and 'stassanized milk.' We consider, however, that it should be made clear that these titles convey no official guarantee unless and until conditions have been officially prescribed.

Side by side with defects in the nomenclature of the grades is the lack of any guarantee to the public that ordinary ungraded milk is of recognised hygienic quality. In our view, this is perhaps the most serious hindrance to any efforts to secure an increase in the consumption of milk by the great mass of the community."

IMPROVEMENT OF QUALITY: THE QUESTION OF PASTEURISATION

The objects of reorganisation are set forth in Chapter VIII, and, in the view of the Commission,

one of these should be on improvement in the quality of the milk. "There can be no doubt that there has already been a material improvement during the last decade. This has been due, to a large extent, to the educational work carried out by the County educational authorities. An important factor, however, has been the recognition of certain statutory grades of milk. These grades have, in fact, become standards by which the quality of all milk can be measured, and have had an influence on the general level of production much greater than is indicated by the comparatively small number of farms licensed for the production of graded milk.

"The existence of such standards, the organisation by County education authorities, with the assistance and encouragement of the Ministry of Agriculture and Fisheries, of clean milk competitions, and the practice of some large distributive firms of giving monetary recognition to suppliers of milk of good quality, have had a marked effect on the industry. Many public-spirited persons not directly connected with the trade have also contributed to the improvement of quality. We are assured that, in some parts of the country at least, a great deal of the milk produced is now of the 'Grade A' standard, though not sold under that designation, and that the bulk of the supply in these areas could, with little difficulty, be raised to that standard.

"We regard it as essential to the well-being of the milk industry that the public in general, and the medical profession in particular, should have assurance that the supply of ordinary milk is produced under reasonably clean conditions and is, as far as possible, free from infection.

"The question of the pasteurisation of milk has recently received a good deal of attention. Although they are not unanimous in their views, the medical profession generally, and that section of it in particular which has a special protective responsibility for the health of the public within specific areas—namely, Medical Officers of Health—seem to take the view that the safety of the milk supply, at least in the large towns, can be ensured only if milk below the Tuberculin Tested grade is efficiently pasteurised. On the merits of this view, as also on the question of the effect of heat treatment on the raw product, we are obviously not competent to judge. It is understood that already a very large proportion of the milk supplied in the biggest cities—London and Manchester, for example—is pasteurised for commercial reasons: it is not for us to comment on the contention that, on grounds of public health, the remainder of the supplies in these and similar areas should be so treated. But there are certain aspects of the compulsory pasteurisation controversy to which we feel it necessary briefly to draw attention.

"In the first place, any measure to compel the pasteurisation of milk supplied in urban areas would be almost bound to have an adverse effect on the producer who has hitherto derived some advantage from close proximity to large consuming centres. The preference that is at present accorded to near-at-hand supplies must thereby be weakened, and the competition of supplies from distant and cheaper producing areas increasingly felt unless measures are taken to prevent it.

"Secondly, any such measure would necessarily affect very seriously the producer-retailer who is in a small way of business. No doubt there is scope for the development of pasteurising plants of smaller capacity and cost, but, even so, there would probably be a number of producer-retailers who would be unable to provide facilities for the proper treatment of their supplies. It seems not unlikely that some of them would go out of business or be absorbed by large distributive firms, though, in this connection, the possibility of making satisfactory arrangements to provide pasteurising plant on a co-operative basis would no doubt be explored.

"Thirdly, the evidence submitted to us is unanimous on the point that pasteurisation is not and never can be a substitute for clean production and that the same care should, therefore, be exercised in the production of milk that is to be heat-treated as is required to be observed in the production of milk that is to be consumed in its raw condition."

"Fourthly, it is evident that pasteurisation must be done efficiently if it is to be effective, and the process should, therefore, be automatically controlled and carried out under strict supervision.

"Fifthly, we are satisfied that the re-pasteurisation of milk is undesirable and should be prohibited."

"GRADES AND QUALITY"

Under this heading are dealt with, in Chapter X, matters of great moment to members of our profession engaged in veterinary public health work, and accordingly we quote the relative paragraphs in full:—

"Importance of Improvement in Quality.—We are convinced that the consumption of milk could be increased, and we think that this object should be constantly in the minds of all connected with the reorganisation of the milk industry. There can be no doubt that the attitude of the medical profession is one of the most important obstacles in the way of increased consumption. It follows that any improvement in the hygienic quality of milk which secured the approval of the profession would confer considerable benefits on the producers as well as on the consumers of milk.

"The criticisms of the milk supply which emanate from the medical profession generally, and from medical officers of health in particular, are for the most part directed towards the present lack of safeguards against milk being or

becoming, infected with tubercle bacilli. They point to the fact that, while the general standard of cleanliness and methods of handling have undoubtedly improved greatly in recent years, there has been no reduction in the incidence of tubercle bacilli in raw milk, a statement that is borne out by the statistics relating to the examination of milk samples. This is a serious reproach, and one for which the dairy industry suffers.

"It is this reproach which is responsible for what appears to be a growing movement in certain large cities at the present time in favour of compulsory pasteurisation. As we have already said, we are not in a position to pronounce on the merits of pasteurisation; but, in our opinion, producers will have considerable difficulty in resisting the demand for compulsory pasteurisation unless adequaie steps are taken to improve the quality of raw milk supplies generally. With this consideration in mind, we make the following recommendations.

"Compulsory Routine Inspection of Dairy Cattle.—Short of the cleaning up of the national dairy herd by the slaughter of all reacting cows and heifers—a step which cannot at present be contemplated—the most effective measure that could be introduced for tackling this serious problem of the tuberculous infection of the milk supply is the routine clinical examination of all the dairy cows in the country. We are firmly of the opinion that this reform should be introduced with the least possible delay. The frequency of the inspections might perhaps vary according to the circumstances of the different areas, but, to begin with, inspection twice a year might be aimed at. While we do not wish in any way to disparage the work carried out by veterinary surgeons in private practice and employed part-time by local authorities, we are satisfied, by the evidence put before us, that this work should be in the hands of officers employed whole-time by County and County Borough Councils.

"Revision of Official Grades.—The question of the routine clinical inspection of dairy cattle is closely allied to the general question of the grading of milk. There is no doubt a demand for milk of reasonably safe hygienic quality, but the price should approximate to that now paid for ordinary milk. Those who are prepared to pay a higher price for milk of guaranteed quality from tuberculin-tested cows, produced and sold under the control of the Ministry of Health and the Public Health Authorities, are already able to obtain what they desire. While it is clearly in the interest of the public health that provision should continue to be made for this special demand, we must recognise that, for the majority of people, such milk is too expensive. The costs of producing milk from tuberculin-tested cows are considerable, and are increased if the milk is bottled on the farm. The cost of distribution is also greater than in the case of ordinary milk, because consumption is much less concentrated. The demand for these high-quality milks must therefore remain a special, though we hope an increasing, demand.

"When we come to the description of milk at present known as 'Grade A,' the case is different. No substantial extra expense is incurred in producing it, and we have frequently been assured that, with careful attention to cleanliness in cows, milkers, utensils and cowsheds, the prescribed bacterial standard can be attained anywhere. We should look, therefore, to milk of approximately the present 'Grade A' standard to fulfil the raw milk requirements of the consumer—namely, a milk of reasonably safe hygienic quality at a price approximating to that which prevails for ordinary milk. One of the aims of the dairy industry must be to foster public confidence in its raw milk supplies.

"We have previously expressed the opinion that the present nomenclature of the officially graded milks gives rise to confusion in the minds of the public. We are of the opinion that the best interests of the industry would be served if the existing grading system were simplified by the provision of only one grade of raw milk. This we should call '*Special*' milk, which would be milk produced under the same conditions as the present 'Grade A (T.T.)' milk. The maximum bacterial-content should vary according as this grade is described 'Bottled on the Farm' or 'Not bottled on the Farm.' 'Special' grade milk 'Bottled on the Farm' would be the equivalent to the present 'Certified' grade.

"We recommend that the present 'Grade A' designation should, in due course, be abolished, but that, in fairness to the interests concerned, notice should be given that the grade will be continued for, say, a further two years. This would enable 'Grade A' producers to qualify as producers of 'Special' grade milk or to continue merely as Accredited Producers under the proposals we make below.

"Roll of Accredited Producers.—We recommend that, for the purposes of our scheme, producers should be divided into two broad classes according to their general standards of production. This distinction should be secured by placing on a roll of Accredited Producers maintained by the Central Producers' Board, those producers who comply with certain prescribed conditions. Under the recommendations which we make later, milk produced by these producers should carry a guaranteed premium, while milk produced by other producers should be subject to a penalty if it fails to reach a prescribed minimum standard of cleanliness and bacterial content.

"The prescription of the conditions which should be satisfied before a producer could qualify for registration on the roll of Accredited

Producers we leave to the Joint Milk Council, but in our opinion they should include:—

(*a*) The clinical inspection of herds and the elimination of diseased animals.

(*b*) The inspection of buildings to ensure compliance with a reasonable standard.

(*c*) The inspection of methods of producing and handling milk to secure compliance with a reasonable standard.

(*d*) The taking of, say, three surprise samples of milk over a period of three months and the satisfaction of a prescribed bacteriological standard.

"Continuance of the roll of Accredited Producers should be contingent upon satisfactory reports of further periodical and surprise inspections made, say, once a year in the case of premises, twice a year in the case of dairy herds and three times a year in the case of milk samples.

"Until such time as adequate veterinary services are provided by County and County Borough Councils under the Milk and Dairies Order, the Central Producers' Board might accept the certificate of an approved private veterinary practitioner as an alternative to the certificate of the veterinary officer of a local authority. Inspection of buildings and of methods of producing and handling milk should be entrusted, as in the case of 'Grade A' milk at present, to the county authorities, who should make their own arrangements as to milk sampling. We think it is important that the county and provincial education and advisory staffs should be closely associated with the officers carrying out this inspection work, in order that the most may be made of opportunities to educate producers in the methods they should adopt to guard against failure to comply with the prescribed standards.

"The main purpose of the roll of Accredited Producers in the initial stages will be to ensure some recognition and reward to producers who comply with certain conditions in matters that conduce to the production of good quality milk. Later, when the milk produced by Accredited Producers represents a substantial proportion of the total supply, the Joint Milk Council might consider the desirability of the establishment of an official grade, the qualifications for which should be similar to the conditions prescribed for the Accredited Producers' roll.

"We are most anxious that there should be a progressive improvement in the quality and cleanliness of milk. We believe that the recommendation we make elsewhere for the payment of a guaranteed premium on all milk sold by Accredited Producers will have a considerable effect, but, to some producers, this premium may not be a sufficient inducement to improve their methods of production. We accordingly recommend that a minimum standard of cleanliness and bacterial content should be prescribed for milk other than that produced by Accredited Producers, and that a penalty, fixed by the Joint Milk Council, should be imposed on producers whose milk is found to be below that standard on being tested at the buyers' premises. The testing should be done only on premises and by apparatus approved by the Joint Milk Council, and the Central Producers' Board should have the right to send a representative to see the testing carried out. The penalty should take the form of a deduction from the regional pool price. The proceeds of these deductions might be used to defray the cost of the tests carried out by the buyers, and the balance should be added to the appropriate regional accounts. This recommendation regarding a penalty applies particularly to milk going to pasteurisation.

"We hold strongly that there should be strict official control, not only of the bacterial content of the milk after pasteurisation, but also of the process itself. If the confidence in pasteurised milk, engendered by the advocacy of members of the medical profession, is not to be misplaced, it is important that the risks of human error in carrying out the process be reduced to a minimum. We regard thermostatic control as essential and consider that the temperature charts should be available for inspection by the local authority . . . It must be made clear that descriptions suggesting other processes carry no guarantee unless some official control has been instituted to ensure that the descriptions are justified. We also consider that, at a later date, no treatment of milk should be allowed except by officially approved and controlled processes.

Interests Concerned in Grading.—In connection with the general question of grading, we think it desirable to draw attention to the numerous interests directly or indirectly concerned.

"The Ministry of Health is the authority mainly concerned with the conditions to be prescribed for the grades and with the administrative control to be exercised. The interest of the Ministry is not confined to grading, but is concerned with the treatment of milk generally from the standpoint of the public health and the legislation enacted to protect it. Local authorities are responsible for the administration of Orders made by the Minister of Health. The Ministry of Agriculture and Fisheries, through its outdoor staff, both educational and veterinary, is chiefly concerned with the practical aspects of clean milk production. The active co-operation of that Department is necessary in the education of producers as to the methods to be adopted in order that milk may comply with the standards that are established . . .

"Uniform Administration of the Milk and Dairies Order.—We consider it essential for the progress of the industry that the Milk and Dairies Order should be brought into universal operation and uniformly and efficiently administered. As one of the measures by which this might be facilitated, we recommend that County and County Borough Councils should be empowered to take

over the administration of the Order, in cases where it is felt that more uniform and effective administration could thereby be secured.

"We must again emphasise our view that the routine clinical examination of all dairy cattle is of as much importance from the standpoint of establishing the confidence of the public and of the medical profession as it is an indispensable part of any scheme of milk grading. Although we feel that the financial burden of our recommendations for reform and reorganisation should, in the main, be borne by the industry itself, we do not consider that either the Government or the Local Authorities should shirk the duties already laid upon them by Statute. We have pointed out that the Councils of Counties and County Boroughs have already the duty of causing such inspection of cattle to be made as may be necessary and proper for the purposes of the Milk and Dairies Order. We have drawn attention to the inadequate manner in which this duty has, in many cases, been carried out, and we indicate later in this Chapter the comparatively small expenditure which is necessary in order to set up an efficient veterinary service. We would therefore earnestly beg the authorities concerned to reconsider their attitude in the interests, not only of the milk industry, but of the whole community.

"A Whole-time Veterinary Service.—We are of opinion that the appointment of a whole-time Chief Veterinary Inspector by the Council of each County and County Borough is the irreducible minimum. We hope that such an appointment will be considered by the great majority of the Councils as the first step only in the setting-up of a whole-time veterinary service. For the efficient operation of the Milk and Dairies Order, the Tuberculosis Order and the Milk (Special Designations) Order, we are convinced that a whole-time service is essential, as and when the supply of qualified veterinary officers is equal to it.

"The Ministry of Health has, however, no power to require the appointment of such officers, and only very limited powers to promote the general enforcement of the Milk and Dairies Order. We have given anxious thought to the best means of bringing about these reforms, and we would urge very strongly that the provision of an adequate veterinary service should be encouraged by substantial assistance from State funds. If, as we hope, it is found possible for the Ministry of Health's Vote to be charged with a contribution towards the salaries of the veterinary inspectors, the ordinary machinery of the Ministry will engage with the cogs of the Local Government machine, and, in due course, a Chief Veterinary Inspector will take his place in the official hierarchy of a Council.

"As an alternative, we have considered the possibility of an inspectorate controlled and financed by the Central Producers' Board. There are, however, serious objections to any such scheme. Although veterinary inspectors could be appointed under the statutory powers to be taken by the Board, their status could hardly be more than "semi-official." They could not have the same position as men appointed by a Government Department or Local Government Authority. They would not be able to take over veterinary work under local authorities, and this would lead to over-lapping as well as waste. Their work would not dovetail into existing services. The fact that many Councils have already instituted whole-time or part-time veterinary services would create difficulties and anomalies.

There is another important consideration. A whole-time veterinary service would be of great value to producers and distributors of milk, but not to them alone. We believe that the consumer would benefit equally, because, if our scheme were adopted, he would be assured of an ever-increasing supply of reasonably safe raw milk. We think, therefore, that it would be inequitable to lay so considerable a share of the cost on the producer alone.

"Even a single Chief Veterinary Officer, giving the whole of his time, could do much to organise the service, to co-ordinate the work of part-time officers, and gradually to bring about uniformity in the interpretation of the various Orders and consistency in administration within his own area. When once such officers were in being, the Minister would have the machinery for inducing a reasonable measure of uniformity and consistency as between areas, by means of the usual circular letters and other means of pressure.

"We may pause to observe that, in some of the counties in which whole-time veterinary departments have been set up, the department has taken over most of the veterinary work irrespective of whether it comes under the purview of the Ministry of Health or the Ministry of Agriculture and Fisheries. In this way, considerable economies are effected by the elimination of overlapping. We have good reason to believe that a whole-time veterinary service would prove considerably cheaper than the present system.

"On the subject of cost, we have been informed that, on an average, one whole-time officer may be expected to examine 10,000 cows three times in twelve months. On this basis, the examination of the whole of the dairy herd in England and Wales would involve the employment of about 300 whole-time inspectors, at a cost for salaries, travelling and administrative expenses of about £300,000. After allowing for the expenditure already incurred by local authorities, the additional cost would be in the neighbourhood of £200,000. This amount, for reasons already stated, would not be reached for several years. The service would have to be built up by degrees, and the area under whole-time officers and the frequency of inspection gradually extended.

The Veterinary Record

February 18th, 1933.

MILK

THE Report of the Re-Organisation Commission for Milk appointed in April of last year by the then Minister of Agriculture, Sir John Gilmour, has been awaited with some anxiety by all who are associated with the production and distribution of this important article of diet and with the Public Health interests related thereto. The Report sets forth in unequivocable terms the plight of the milk industry in this country. While this has been recognised for some time past by those who are associated with production and distribution, it has come as something of a shock to a large body of the milk consuming public. Faced, as the industry is, by over-production of the raw product at home, by flooding of the country with milk products from every quarter of the world, and with the price of milk for manufacture at half of that for raw consumption, the Commission were confronted with a situation of peculiar difficulty. It would at first sight appear that such a problem might be solved in one or both of two ways, namely, by the limitation of home production and importation and by an increase in consumption. In regard to home production, it must be remembered, however, that there was a marked increase in the number of dairy cattle during the years 1931-1932, the latter showing the highest ever recorded despite a fall in milk values, presumably because in view of the present state of agriculture milk production offered smaller risks and more certain returns than other branches of the industry. Imported milk products may be controlled to some extent, but hope for the future would seem to depend principally upon an increased demand, especially for the raw product.

It is undoubtedly true that the consumption of milk, at present approximately one-third of a pint *per capita*, could be enormously increased by well organised publicity, and in this connection the excellent work being undertaken by the National Milk Publicity Council should be noted. But before any marked improvement can be hoped for in this direction, it is essential that the confidence of the public in the purity of the milk should be secured. Hitherto, much of the publicity has of necessity been of a character which instead of inspiring confidence has had the opposite effect both upon the milk consuming public in general and the medical profession in particular.

The excellent purpose underlying the Milk (Special Designations) Order of 1923 has not been served to the extent which was originally hoped for. The Order has made available, for those who can afford to purchase it, a milk possessing a high standard of hygienic quality, but the demand has been disappointingly small, due doubtless in large measure to ignorance of its existence and the significance of the designations. To remove the present confusion in regard to the nomenclature of the official grades, the Commission recommend their reduction to one, namely, "Special" grade, which according to whether it is bottled on the farm or not will replace the present "Certified" and "Grade A (T.T.)," while the present "Grade A" designation will be abolished in due course. There is no doubt that this clarification of the nomenclature will assist in some measure in encouraging the consumption of the higher grades, for it is certain that many consumers now purchase "Grade A" under the impression that it is of superlative quality.

The unequivocable opinion of the Commission that pasteurisation is not, and never can be, a substitute for clean production has long been recognised by those whose primary duty lies in safeguarding the public health. It not infrequently happens that the dust of controversy obscures the real points at issue and recent discussions regarding pasteurisation have been neither helpful nor edifying.

In order to establish confidence in the hygienic properties of milk, no time should be lost in improving facilities for the adequate application of existing legislation designed to that end. In this connection the Commission

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"Qualifications of Sanitary Inspectors.—Finally, we would strongly urge the authorities responsible for the administration of the Milk and Dairies Order to appoint as inspectors of cowsheds and dairies only persons who have attended, or are prepared to attend, a course in Clean Milk Production. We understand that ample facilities for such courses are offered by the various agricultural colleges and farm institutes."

The distribution of powers between the three new authorities to be established forms the subject of a chapter (XIV), wherein may lie the seeds of controversy, but fortunately for our purpose it has merely to be noted here that it is recommended that the Minister of Health should exercise his powers in regard to grading only after consultation with the Appointed Members of the Joint Milk Council.

recommend the routine clinical examination of all dairy cows in the country, with the elimination of diseased animals and are "firmly of the opinion that this reform should be introduced with the least possible delay." Not satisfied with a mere expression of opinion, the Commission proceed to suggest steps whereby this object may ultimately be achieved.

While the existing legislation is regarded as adequate for the purpose in view, the Commission are aware of the anomalies which exist as a result of local interpretation and application of that legislation, and although the suggestions which they make may serve to mitigate this evil, it is doubtful whether the problem will be solved without further methods of co-ordination. In this respect it is possible that veterinary officers may play an important part. Real improvement in enforcing the powers which are at present available, must be the first step in any scheme designed to give the consumer grounds for confidence in this valuable food, and to further propaganda which shall lead to that marked increase in the consumption of milk upon which the future of the industry depends.

The recommendations present difficulties. They involve steps which none will desire simply for their own sakes, but the disease is desperate and the remedy can be no palliative. The Report should be read and pondered, and the recommendations must be considered in relation to the economic position of the industry and the national welfare.

H.M. STATIONERY OFFICE PUBLICATIONS

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Clinical and Case Reports

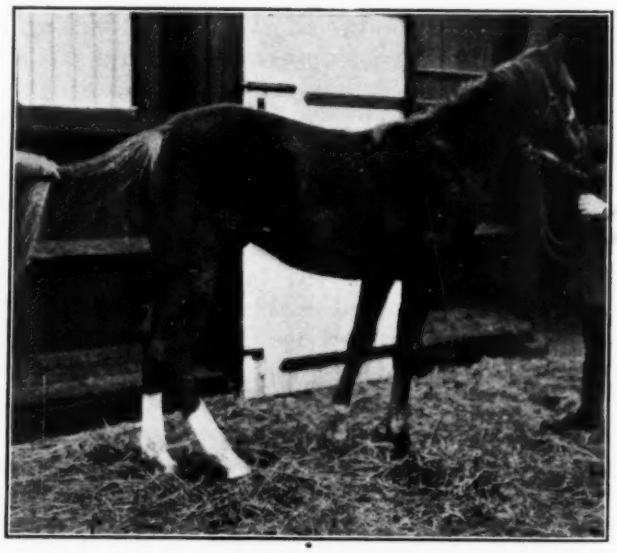
RUPTURE OF THE OUTER HEAD OF THE GASTROCNEMIUS IN A YEARLING COLT*

E. BRAYLEY REYNOLDS, *O.B.E.*, M.R.C.V.S.
NEWMARKET

Last summer I was called to see a yearling colt which had been injured while out in the paddock. There was excessive flexion of the hock joint and the stifle joint appeared to be very much straighter than normal. The colt was of very little value, and on my reporting the nature of the injury, it was decided to shoot the animal.

Post-mortem examination revealed that the attachment of the outer head of the gastrocnemius had been torn from the back of the femur. I have not the slightest hesitation in saying, however, that, given time, complete repair would have taken place.

The accompanying photograph illustrates the appearance of the limb while at rest, and in it the straightening of the stifle is well shown.



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SPLIT PASTERN IN A PONY*

J. G. WRIGHT, F.R.C.V.S.

The subject, a six-year-old chestnut mare cob, of about 750 lbs. in weight, had been presented at the College seven weeks previously for lameness in the off fore limb. The lameness was not severe (in fact, the animal had been walked some six miles to the College) but was readily discernible at a trot.

Palpation of the limb failed to reveal the cause, as also did an examination of the foot, and so plantar block as a diagnostic aid was adopted.

* Cases presented to the Royal Counties Division, N.V.M.A., at the Royal Veterinary College, Camden Town, November 25th, 1932.

ILLUSTRATING PROFESSOR WRIGHT'S CASE OF SPLIT PASTERN

FIG. 1.

ANTERO-POSTERIOR VIEW OF PASTERN: THREE DAYS AFTER ACCIDENT (LEG IN PLASTER OF PARIS).

Exposure: 1½ seconds.

Radiographers: Ede and Furby.

FIG. 2.

ANTERO-POSTERIOR VIEW OF PASTERN: SEVEN WEEKS AFTER ACCIDENT.

Exposure: 1½ seconds.

Radiographers: Ede and Furby.

Chlorocain was used, 3 c.cs. being injected over the outer and 5 c.cs. over the inner nerve. In ten minutes the skin of the coronet was insensitive to the prick of a pin.

Examination now revealed the pony to be trotting sound, and a tentative diagnosis that the cause of the lameness was situated below the fetlock joint, probably in the foot, was made.

Advice was given for the foot to be poulticed twice daily.

Three days later the animal was returned to the College in an ambulance. There was acute lameness in the off fore, the pain being such that weight could only be taken momentarily on the toe. On moving the animal hopped.

Examination revealed considerable swelling extending from the coronet to the middle of the metacarpal region. Radiography showed a diagonal fracture of the first phalanx extending from the middle of the inner aspect of the bone to the middle of the articular surface in the coronary joint.

The limb was bandaged with bandages reinforced with plaster of Paris and the animal placed in slings.

Prognosis was, of course, grave.

At the end of 14 days the plaster was removed and replaced by a tightly-applied calico bandage. By this time the animal was commencing to take weight on the limb and the swelling had subsided. In addition, slings were removed in the daytime.

At the end of the third week slings were dispensed with and it was found that the pony was able to lie down and rise again during the night. New bone callus could now be palpated at the coronet.

From that point improvement became progressive, and at the time of the demonstration the pony was able to walk quite freely, although was very lame at the trot.

As to the ultimate outcome of this case, it is felt there must be considerable doubt. It is proposed to send the animal to a rest home for three months. Examination of the radiographs revealed considerable callus formation, but the articular cartilage of the bone appeared to be clean.

The case presented a number of interesting features. The onset of acute lameness was first noticed the morning after the application of plantar block. Nothing untoward happened during the pony's journey home. Was the fracture the result of some incoördinated movement consequent upon desensitisation of the foot? Did returning sensation give rise to some tingling sensation which caused the animal to paw violently? Or, and of course this is the comforting explanation, had the pony a fracture without displacement as the original cause of the lameness? [Several members, during the discussion, expressed the opinion that this was the case.]

So few cases of bone fracture in the horse receive treatment that one cannot give an accurate prognosis. This case at least serves to show that an animal can recover from a fracture of the first phalanx sufficiently to bear its weight and to walk freely.

* * * * *

LESIONS OF THE CERVICAL VERTEBRÆ IN A CAT*

R. F. WALL, M.R.C.V.S.

I was called early last August to see a seven-year-old blue Persian cat said to be suffering from rheumatism in the left fore leg. The position of the animal's head and its general appearance led me to suspect that the animal had received a blow on the side of the neck or had sustained an injury from a fall. Careful enquiry into the history did not support either suspicion. The lameness in the fore leg was associated with definite evidence of ulnar paralysis. I came to the conclusion that there was a slight dislocation of the atlas and axis due to pressure from dense fibrous or osseous tissue, with the result that the spinal cord was subjected to pressure as well as the nerve supplying the near fore leg. I gave an unfavourable prognosis but, to pacify the client, prescribed massage and iodides.

In ten days some improvement appeared to have taken place, but a fortnight later I was informed by the owner that the cat was no better and that while on holiday she had submitted the animal for examination to two veterinary surgeons, who had pronounced it a case of fracture and dislocation of the shoulder. I asked if I might again examine the cat, as I was not aware of any fracture. I decided to anæsthetise the animal to see if the trouble in the neck could be reduced and, if not, to propose to the owner that the cat be destroyed. On arrival at my surgery it was examined by another member of the profession, who also diagnosed fracture and dislocation of the shoulder. The animal was anæsthetised, and, as I satisfied myself that nothing could be done for the lesion in the neck, the animal was destroyed. *Post - mortem* examination revealed osseous lesions of the occiput, atlas, axis and vertebræ further down the neck, but no evidence of fracture or dislocation of the shoulder. I pointed out to my friends who had examined the case that the shoulder trouble was due to atrophy of the nerves and muscles—the ulnar and median nerves of that side were about a third the diameter of those on the opposite side.

The point which interested me most about this unusual case was whether the lesion was cancerous. I saw no evidence of tubercle. The original owner of the cat had unfortunately suffered from cancer for about three years and for a considerable part of that time spent many

* Case presented to the Royal Counties Division, N.V.M.A., at the Royal Veterinary College, Camden Town, November 25th, 1932.

hours in the sick-room. Probably two years had elapsed between the death of the owner and the first notable symptom of illness in the cat. Unfortunately the specimen was boiled out without a section being kept for examination in the fresh state, but I hope to get some information from examination of sections of the bone later on.

Review

[**Veterinary Obstetrics and Zoötechnics.** By Howard N. Beeman, D.V.M., Major, Veterinary Corps, U.S. Army. Pp. 131. Size 5¾ × 8¼. Price 15s. net. London: Baillière, Tindall & Cox, 1932.]

This is an unusual book on veterinary obstetrics. Its scope is limited to the more intimate details of structure, functions and affections of the reproductive organs of the mare and stallion and to hygiene and some of the diseases of the foal. It appears to be a compilation of highly useful information derived from various sources: veterinary surgeons engaged at the principal stud-farms of Kentucky, a few well-known text-books, and a bulletin issued by the Agricultural Experiment Station of Kentucky University. The author makes no claim to originality "except that of the motivating spirit and the arrangement of the subject matter."

This small work of approximately 116 pages of text, three of contents and 6½ of index, is arranged in three parts, with an ample bibliography at the end of each section. The first part is devoted to a description of the anatomy and physiology of the genital organs of the mare, and the fœtal membranes and placenta. Part two deals with gestation, foaling time, diseases of the foal (intestinal catarrh, white scour and pyosepticæmia), care of the foaling mare, breeding season, œstrum, impregnation, spermatozoa, sterility of the stallion, etc. The third part discusses the diagnosis of pregnancy, bacteriology of the genital organs, pathology and treatment of sterility, abortion in mares, its symptoms, diagnosis and prevention.

Altogether a pretentious programme, but it can be said that, apart from faulty spelling of certain terms, a tendency to needless repetition in places and an occasional light venture in imagination, this is an excellent book and one that can be strongly recommended to veterinary surgeons employed at horse-breeding farms and to veterinary students, who will find in it valuable information on subjects not always fully expounded in lectures on obstetrics.

THE "CLASS C" TRAGEDY

Teacher: "In liquid media non-motile bacteria settle to the bottom of the liquid."

Class C student (since October): "Why is it the bacteria don't drown?"

[Collapse of the teacher.]

Abstracts

[**On the Occurrence and Demonstration of *BR. ABORTUS* in Milk.** Karsten. *D.T.W.* No. 44, October 29th, 1932. 689.]

The author has conducted an extensive enquiry into the above problem, and is of the opinion that the extent of agglutination, using blood or milk sera, indicates whether or not *Br. abortus* is being excreted from the mammary gland. A 1: 10 milk serum titre is regarded as positive, and from cows with higher titres the micro-organism can usually be cultivated. Cows which have aborted expel the organism in a high percentage of cases, and animals in infected herds which calve normally often do likewise. Most *Br. abortus*-expelling cows show positive blood and milk serum titres, but 11 per cent. of expellers showed negative blood titres and 13 per cent. negative milk titres. In 8 per cent. of such cows both blood and milk were negative.

With the extent of the reaction to the agglutination test the certainty with which the micro-organism can be obtained from the milk also increases, *viz*:—in blood titres of 1: 100, 21 per cent.; in blood titres of 1: 400 and over, 64 per cent.; with milk titres of 1: 10, 25 per cent.; over 1: 40, in 64 per cent. of cases. Using the guinea-pig method of isolation, it was discovered that affected animals did not always yield a culture from each quarter of the udder. It would appear also that the range of agglutination is not always similar in the four quarters, but quarters showing the highest reaction are most likely to yield a culture. It is immaterial whether middle milk or end milk is used.

The guinea-pig test, in the author's opinion, is the most certain method of establishing mammary infection. These animals were injected with the deposit obtained by spinning 100 ccs. of milk. Occasionally ·5 cc. of the cream layer may be used, as also can 4 ccs. of raw milk. Blood obtained by heart puncture after four weeks may be tested for agglutinins, and since the blood serum of normal guinea-pigs does not agglutinate *Br. abortus*, a 1: 40 reaction can be regarded confidently as indication of infection of the tested sample of milk. In negative cases a search of the internal organs for changes produced by *Br. abortus* should be undertaken later. If a marked titre develops in the guinea-pig's blood after 2—4 weeks, one may assume that the milk contained a large number of the specific micro-organisms.

Br. abortus grows well on serum containing glycerin agar plates, and after a few days in an atmosphere of carbon dioxide characteristic colonies develop. Gentian violet in weak dilution may be added to the medium to inhibit the growth of other organisms. Regarding direct cultivation of *Br. abortus* from milk, the best re-

sults will be obtained from smearing directly on the media a small amount of undiluted milk. The author thinks there is no benefit derived from centrifuging the same, and the cream layer should not be employed.

W. L. S.

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[The Detection of *BR. ABORTUS* in Milk. Pröscholdt, *D.T.W.*, No. 43, October 22nd, 1932, p. 674.]

This article is divided into two main sections dealing respectively with the detection of *Br. abortus* in bulk samples of milk by the biological and the milk serum agglutination methods, and with details of technique concerning the latter method. Reference is made to the increased significance of *Br. abortus* in milk, and to the importance of being able to detect carriers and spreaders of this micro-organism. In a large series of examinations (5,000) the author shows that a positive blood serum reaction in guinea-pigs injected with test milk, as well as direct serum agglutination of such milk, are two reliable methods of establishing the presence of *Br. abortus* in milk. Of these methods, preference is given to the latter, which is probably more reliable and is certainly easier, cheaper and much quicker. Both methods were used in comparative tests and agreement was reached in 85·5 per cent. of the milks examined. With milk serum agglutination an opinion can quickly be given as to whether *Br. abortus* infection exists in the herd. Prior to testing, the sample is coagulated with rennin and the test performed using the resultant whey. A titre of 1:10 is regarded as positive. The positive result of such a test is definite, but a negative finding requires biological confirmation.

Section two commences with a discussion of technical points bearing on the isolation of *Br. abortus* from infected milks. For example, the author shows that a concentration of 1 per cent. boric acid, which is commonly used as a preservative of milk, may so damage the micro-organism that its isolation in culture becomes impossible. If this substance be used its concentration shall not exceed ·5 per cent. Again, on centrifuging infected milk, are the bacteria more abundant in the deposit or the cream layer? The author thinks it is immaterial whether one uses the deposit or the cream; probably, however, the best results are obtained by employing a mixture of both. End milk is more likely to yield a culture than either the first or middle milks. With the biological test two guinea-pigs are used, and in judging infection a 1: 20 blood serum titre is regarded as positive, while a reaction in 1: 10 usually denotes no infection. It is immaterial whether agglutination is carried out on the fore, middle or end milk.

Discussing his actual experiments, a comparison is first of all made between the blood serum and milk serum titres of reacting cows. These, of course, do not run parallel, and his conclusion is that only in 3 per cent. of cows with a blood serum agglutination titre of 1: 100 or lower, can *Br. abortus* be isolated from the milk, and that 94-97 per cent. of animals excreting this organism in the milk have a blood titre of 1: 100 or higher. Further, 81-86 per cent. of such animals show a positive milk serum agglutination. The higher the blood serum reaction the more constant is the cultural test, and 100 per cent. recoveries were obtained where the blood titres lay between 1: 8,000 and 1: 64,000. Regarding the formation of *Br. abortus* antibodies, the author believes that these may be formed independently in the udder, as cases were encountered where the milk titres were as high or higher than those of the blood. Also, titre variations in the examination of separate quarters have been encountered, which is scarcely compatible with the view that antibodies emanate in the blood and pass thence to the mammary gland. Consequently, it is animals with positive milk agglutination that are concerned with the expulsion of the organism in the milk, since the presence of agglutinins implies colonisation of *Br. abortus* in the udder.

In the cultivation of the micro-organism from milk, guinea-pigs can in most cases be dispensed with. This method is slow and costly and the author has obtained a 64 per cent. agreement in a comparison of this and the direct cultural method. Improved technique would probably increase this figure. The author uses liver agar, to which gentian violet in strength of 1: 60,000 to 1: 100,000 is added.

Concluding, the author stresses the value of the agglutination test to herds. He states that animals with a blood serum reaction of 1:100 or under may be regarded as free from the danger of spreading *Br. abortus*. On the other hand, cows showing 1: 400 or over can be regarded as expellers.

W. L. S.

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[Researches on *BR. ABORTUS*. Schmidt. *D.T.W.* No. 44, October 29th, 1932. 702.]

In Germany the study of Brucellosis in cattle received considerable impetus from recent State ordinances, requiring, *inter alia*, the sterilisation of milk from cows affected with *Br. abortus*. The above article deals with the occurrence and diagnosis of this micro-organism in the milk and in the mammary gland of cows. Using the biological confirmatory method, 2,079 mixed milk samples were examined and specific *Br. abortus* agglutinins were obtained in 10·6 per cent. of cases. The average size of the herds concerned was 6·9 cows. A clinical examination of the udders of affected cows leads the author to believe that colonisation of *Br. abortus* in this organ does not produce inflammatory changes. Intramammary

infection of a healthy lactating cow, however, produced a transient mastitis with systemic disturbance, lasting a few days, but caused no observable udder changes. In two days the body temperature fell to normal. Microscopically, the milk showed an increased number of leucocytes and epithelial cells, but the picture indicated an ordinary inflammatory reaction and was not specific for *Br. abortus*. The micro-organism was regularly demonstrated in the milk deposit and cream layer, and six weeks later was obtained from the non-infected quarters. On *post-mortem* examination, *Br. abortus* was obtained from the mammary gland, iliac and fetlock lymphatic nodes and uterine secretion, showing that its habitat is not limited to the udder and uterus, but extends to lymphatic tissue.

W. L. S.

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[**A Rare Animal Friendship.** Lane. *D.T.W.* No. 39, October 24th, 1932. 616.]

The author reports a friendship struck up between a roebuck and a hen. Collision with a train severely injured the buck and its right hind limb was amputated. Apparently the hen strayed into the buck's enclosure and the two became inseparable friends; the hen perching itself on the head of the roebuck. In all kinds of weather they were to be seen together. A photograph illustrates this peculiar attachment.

W. L. S.

ROYAL AGRICULTURAL SOCIETY AND COMPULSORY PASTEURISATION

Opposition to the proposed compulsory pasteurisation of milk as a means of eradicating tuberculosis was expressed in a resolution passed at a recent meeting of the Council of the Royal Agricultural Society in London.

On the recommendation of the Veterinary Committee, who reported their consideration of a report by another body on a survey of tuberculosis of bovine origin, the Council resolved:—

"That the Tuberculosis Order of 1925 is wholly ineffective as a measure for decreasing the incidence of tuberculosis in the herds of Great Britain, and that the money spent on its operation is wasted.

"The Council are unanimously of the opinion that as a first and important step towards the eradication of tuberculosis, mastitis, abortion and Johne's disease in cattle it is essential to institute throughout the whole country routine inspection not less than four times a year, by a whole-time staff of veterinary officers.

"The Council do not consider that pasteurisation, whatever may be its merits or demerits, can be an alternative to the above suggestion."

Sir Merrik Burrell, Chairman of the Veterinary Committee, expressed the Society's congratulations to the Ministry of Agriculture on its prompt and efficient action in quelling the recent outbreak of foot-and-mouth disease. But for their action, he said, the dispersion of cattle from such a large centre of distribution as Reading might have caused widespread disaster.

N.V.M.A. Divisional Report

ROYAL COUNTIES V.M.A.*

MEETING AT THE ROYAL VETERINARY COLLEGE

The November meeting of the Royal Counties V.M.A. was held in the large Lecture Theatre of the Royal Veterinary College, Camden Town, by kind permission of the Principal. The President, Major F. J. Taylor, occupied the chair.

The following members were present:—Messrs. J. H. L. Addis, J. R. Baxter, J. Bell, H. Bell, Capt. R. E. C. Bullen, Mr. P. Crosfield, Principal F. T. G. Hobday, Mr. C. W. Howard, Mr. G. E. King, Major H. Kirk, Major H. G. Lepper, Capt. W. L. Little, Mr. J. W. McIntosh, Capt. B. A. Maguire, Mr. G. P. Male, Gen. Sir John Moore, Capt. E. Brayley Reynolds, Lt.-Col. P. J. Simpson, Major R. C. Tennant, Major R. F. Wall, Messrs. Wilkinson, J. Willett, R. A. Willett and Prof. G. H. Wooldridge.

Amongst the visitors present were:—Messrs. F. C. Burridge, T. A. R. Chipperfield, T. G. Headley, Geo. Pennington, W. Perryman and R. J. Stow.

The minutes of the previous meeting, having been printed and published in the *Veterinary Record*, were taken as read.

Correspondence.

(1) Apologies for absence from the following members:—Capt. W. A. Austin, Prof. J. B. Buxton, Capt. J. A. Craft, Major A. C. Duncan, Messrs. A. V. D. Franklin, Tom Lepper, H. C. Shingler, Major S. L. Slocock, Col. G. K. Walker, Capt. E. C. Winter.

(2) From Prof. J. B. Buxton, pointing out that he, after having been one of the Division's representatives on the Council of the N.V.M.A. for some years, had now automatically become a member of the Council of that body. This had come about as the result of an amendment in the Articles of Association of the "National," which provides that all past-Presidents of the N.V.M.A. automatically become members of Council.

The letter concluded with an expression of Prof. Buxton's thanks to the Royal Counties for permitting him to represent them in the past and his regret that the relationship must cease. He assured them, however, that he would regard it as a privilege to assist in the furtherance of any matters which the Division might desire to bring to the notice of the Council of the "National."

(3) From the Organising Committee of the "National," urging the Division to establish early contact with any local branch of the R.S.P.C.A. which had not yet been approached, with a view to establishing clinics for treatment of sick animals of the poor.

Election to Membership.—Mr. N. S. Barron, of Reading University (proposed by Mr. G. P. Male

* Received for publication, January 30th.

and seconded by the Hon. Secretary), was unanimously elected to membership.

Resignation.—The meeting received a letter from Capt. T. B. Yarrow, formerly of Swindon, tendering his resignation on account of his removal to Ludlow. Mr. J. Willett proposed, Mr. G. P. Male seconded, and it was agreed that Mr. Yarrow's resignation be accepted.

Report of Delegate to The Royal Sanitary Institute Congress

Major J. J. Dunlop presented the following report:—

"I have to report that I attended the Congress of the Royal Sanitary Institute at Brighton in July last as the representative of this Association. Three excellent papers were read of particular interest to the veterinary profession. In Major de Vine's paper on "The Law relating to Meat Inspection in England" he emphasised the need for uniformity of methods of inspection. The paper was well discussed and several of the speakers, presumably lay inspectors, apparently did not consider a veterinary degree to be at all necessary; in fact, rather the contrary! The papers by Messrs. Simpson and Medlock showed the great importance of the work done by whole-time veterinary inspectors. Both were well received and discussed.

"The general arrangements at the Congress were excellent and large attendances and a general air of enthusiasm were the rule at the meetings.

"Altogether an enjoyable and instructive gathering."

Election of Officers for the Year 1933

The following were elected office-bearers:—

President.—Capt. H. B. Collet, B.V.Sc., of Aylesbury.

Vice-Presidents.—Lt.-Col. G. B. C. Rees-Mogg, O.B.E., Major F. J. Taylor, T.D., and Major J. J. Dunlop, M.C.

Council.—The President, Vice-Presidents, Hon. Treasurer and Hon. Secretary (*ex-officio*); Prof. J. B. Buxton, Major A. C. Duncan, T.D., Major Dunkin, Mr. G. P. Male, Col. Walker, Mr. F. W. Willett and Mr. E. Wilkinson.

Hon. Treasurer.—Capt. R. E. C. Bullen.

Hon. Secretary.—Mr. H. Bell.

Hon. Auditor.—Mr. J. Willett.

Representatives to Council N.V.M.A.—Major A. C. Duncan, Major F. J. Taylor, Mr. J. Willett and (*ex-officio*) the Hon. Secretary.

Representative to Council, Victoria Veterinary Benevolent Fund.—Major G. W. Dunkin.

MORBID SPECIMENS AND CASES OF INTEREST

Mr. R. A. Willett showed a tumour taken from the abdomen of an eleven-year-old spaniel. This weighed 7½ lbs., as against a total (dead) body weight of 26 lbs. This animal was thoroughly examined in August and no trace of any tumour was then felt. The case was remarkable in that such a growth could occur in so short a time without apparently causing any particular symptoms until a week or so before death.

Mr. Willett also brought several specimens of round worms (*Ascaris suis*) taken from the bile ducts of pigs on *post-mortem* examination. The herd of pigs had been subjected to all the normal vermifuge treatments without material benefit, and Mr. Willett asked the members if they could advise him and if there was any knowledge of any new treatment for this condition, which was causing great loss in several herds in his district.

Mr. G. P. Male said he thought the best method of treating worm infestations in pigs was to use preventive measures. The sows previous to farrowing should have an effective vermicide and their mammary glands and hind parts should be washed with an antiseptic, such as a solution of potassium permanganate. They should then be removed to clean styes to farrow where suitable precautions had been taken to destroy worm ova.

Major G. W. Dunkin expressed interest in the neoplasm which Mr. Willett had presented to the meeting, and hoped that Mr. Willett, if he had not already done so, would take steps to ascertain the exact nature of the growth.

Referring to Mr. Willett's enquiry concerning what should be done by way of treatment of the pigs which had been described as being badly infected with "worms," Major Dunkin presumed that the parasite referred to was the common pig ascarid.

He had heard both Mr. Willett and Mr. Male refer to treatment which they had employed, but he had listened in vain for any specific measure which had been taken. It was therefore quite impossible for him (Major Dunkin), or indeed anyone else, to recommend a "better method of treatment." In spite of this, he was tempted to refer to the successful use of hexylresorcinol in the treatment of ascarides in puppies, since it might be a fruitful source of treatment in swine. The article describing the use of this drug appeared in an American journal recently and Major Dunkin would be glad to supply fuller details to Mr. Willett, or, indeed, to any member who might require it, later.

Major R. F. Wall described a case in a Persian cat which, on *post-mortem*, was found to have osseous lesions of the occiput, atlas, axis and vertebræ further down the neck. [This case is recorded in our Clinical Section this week.—Ed., *V.R.*]

Major H. Kirk said that he had not brought a pathological specimen with him, but would like to refer briefly to an interesting case of ruptured Tendo-Achilles which he had encountered in a four-months-old kitten. After examination he advised destruction, pointing out to the owner the

difficulty of suturing at the point of rupture because the tendon had been torn away from its attachment to the Os Calcis.

He took the cat back for destruction, but thought he would like to see how the case would respond to *vis medicatrix naturæ*. At the end of six weeks the kitten was walking on its toes and after two and a half months the tendon appeared to have grown completely down. To-day the animal walked and ran about quite normally, there being no indication that the leg had ever been injured. (This case was fully reported in the *Veterinary Record*, 1436, No. 49, Vol XII.)

Mr. Male, referring to Major Kirk's cat case, said that he had recently had a similar case in a hound, in which the Tendo-Achilles had been torn from its attachment, together with the end of the Os Calcis, which had received a comminuted fracture.

A hole was drilled in the Os Calcis and a strong ligature inserted through this and the tendon, bringing them into apposition. After well saturating with acriflavine solution a plaster bandage was applied. The wound and fracture healed perfectly and the hound was able to hunt again.

Capt. Brayley Reynolds raised the point as to whether it was actually the gastrocnemius tendon that had been ruptured at the Os Calcis or whether it was the upper attachment of the muscle that had parted.

[Capt. Reynolds' question was prompted by a case in a yearling colt, in which the outer head of the gastrocnemius had been torn from the back of the femur. This case is recorded and illustrated in our Clinical Section.—Ed., *V.R.*]

Tour of the Buildings.—After the business of the meeting had been concluded the Principal conducted the members over the buildings which have already taken shape in the scheme of rebuilding, and explained, as the party went along, the uses for which the various rooms and departments were being designed. He also briefly outlined plans for buildings in the new college which had not yet been begun.

This part of the programme proved of great interest, particularly to those members who had been familiar with the old College buildings.

Hospital Cases, etc.

The party then divided into two or three groups to inspect some interesting hospital cases.

Tuberculosis in a Draught Gelding

Amongst these cases was one, a draught gelding, suffering from tuberculosis. It had been sent to the College by Mr. Perryman, who was present at the meeting as a visitor.

Mr. Perryman had been called to see the case two or three weeks previously—apparently it had been working up till then—the owner complaining that the animal was very stiff in its gait. Mr. Perryman, suspecting tuberculosis, had subjected the animal to the subcutaneous tuberculin test. The thermal reaction had been negligible (less than ·5° F.) and local reaction entirely absent.

Mr. Perryman being certain, however, of the diagnosis—based upon the typical changes in connection with the cervical region—had sent the case to the College as one of interest. Prof. McCunn had subjected the animal to the double intradermal tuberculin test. At the 48th hour the swelling had attained enormous dimensions, and was still there for the members to inspect.

The Wire Splint in Canine Surgery

Professor J. McCunn gave a very instructive demonstration of the application of a wire splint for use in canine surgery. This is an adaptation of a similar appliance used in human surgery.

The claims made for this form of splint are:—

1. The facility with which it can be manufactured by the surgeon at little expense.

2. Its usefulness in immobilising fractures situated high up in either the hind or fore limb where other forms of splint would prove useless.

The procedure adopted in splinting a fore limb.—A piece of wire of convenient length is taken (the length and gauge will depend upon the size of dog). The wire is twisted into a circle to encircle the limb in the region of the axilla. From the axilla the wire is continued down to lie along the middle line of the inner aspect of the leg, being turned across the sole of the foot and carried up the outer aspect of the leg, passing under the loop above, to be continued over the withers in the form of a rough hook.

The splint can be improved by threading it through a piece of fine rubber tubing.

The fracture having been reduced, the limb is immobilised by suspending it in the splint at several points with adhesive tape. Extension of the limb is also provided for.

Professor Wright had an interesting case of split pastern in a pony for the inspection of the members. [This case is recorded and illustrated in our Clinical Section.—Ed., *V.R.*]

At this stage the party repaired to the College refectory, where tea was provided.

Film Display.—After tea the Principal had arranged a display of cinematographic films from the College library. Amongst the films was one showing the performance of the operation of rumenotomy in the ox for the removal of a foreign body, the operator being Professor Wright. Another film showed an operation for amputation of the hind limb in the dog, the operator in this case being Professor McCunn. The technique of the operation was easily followed, and the films cannot but prove to be of great value in the teaching of veterinary surgery.

Votes of Thanks. — The President (Major Taylor), at the conclusion of the film display, proposed a very hearty vote of thanks to Professor

Hobday and his staff for the very interesting programme which they had arranged for the Royal Counties that afternoon. He also paid tribute to the work which the Principal had done in raising funds for the rebuilding of the College, and congratulated him on the rapid progress of the re-building. General Sir John Moore seconded Major Taylor's vote of thanks. The Principal, in reply, said that it was a great pleasure to himself and his staff to have the members of the Division as their guests, and he hoped that in the near future, when the College buildings were completed, that they would come again. He thought that they would find the new college second to none. (Hear, hear.)

Major Kirk proposed a vote of thanks to the President for his conduct in the chair, and Capt. Collet proposed that a similar tribute be accorded those who had presented morbid specimens and contributed to the discussion, declaring that in his opinion these discussions were most important features of the meetings.

H. Bell, *Hon. Secretary.*

IN PARLIAMENT

The following questions and answers were recorded in the House of Commons recently:—

Foot and Mouth Disease

Sir G. Fox asked the Minister of Agriculture whether he has yet been able to trace the cause of the recent outbreak of foot-and-mouth disease; and what has been the expenditure incurred to date in connection with compensation arising through this outbreak?

Major Elloit: Since the 8th January, 38 outbreaks have been confirmed, and of these 27 are directly or indirectly attributable to infection contracted at loading banks at Reading, on the 5th and 6th January. I regret, however, that it has not been possible to discover the original cause of these or of the remaining six outbreaks. The compensation payable amounts to £34,895.

Sir C. Cayzer asked the Minister of Agriculture whether, in view of the possibility that the prevalence of foot-and-mouth disease may be traceable to the importation of cheap foreign bacon, the remnants of which are fed to home-grown pigs, this suggestion has been fully investigated and, in the event of its justification, whether the Government are prepared to take steps to stop such importation, and so save the expenditure at present consequent upon outbreaks of foot-and-mouth disease, and also assist still further the home production of bacon?

Major Elliot: A certain risk attaches to the feeding of remnants of bacon to pigs; but the Ministry in its investigations has found no reason to suppose that recent outbreaks have been due particularly to this cause. Food containing remnants of bacon, as of other meat, must under an Order of 1928 be boiled for an hour before being fed to pigs.

Sir C. Cayzer: Is it not a fact that foot-and-mouth disease was found in foreign pork some years ago, and does not the right hon. and gallant Gentleman think it worth while investigating this matter further?

Major Elliot: If my hon. Friend has any suggestions which he wishes to bring forward, I shall be glad to have them further investigated.

Notes and News

The Editor will be glad to receive items of professional interest for inclusion in these columns.

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DIARY OF EVENTS

Feb. 20th.—Meeting of the Editorial Committee, N.V.M.A., at 2, Verulam Buildings, Gray's Inn, W.C.1, at 4.30 p.m.

Feb. 22nd.—Annual Dinner of the Midland Counties Division, N.V.M.A., at Birmingham.

Feb. 22nd.—Joint Meeting of the Sections of Comparative Medicine and Therapeutics and Pharmacology, Royal Society of Medicine, at the Society's House, 1, Wimpole Street, W.

Feb. 22nd.—Annual Meeting of the Eastern Counties Division, N.V.M.A., at Norwich.

Mar. 2nd.—Meeting of the Central Division, N.V.M.A., at 10, Red Lion Square, W.C.1.

Mar. 10th.—Annual Dinner and Dance of the Yorkshire Division, N.V.M.A., at Leeds.

April 1st.—R.C.V.S. Annual Fees due.

April 5th.—R.C.V.S. Committee Meetings.

April 6th.—R.C.V.S. Committee Meetings.

April 6th.—R.C.V.S. Annual Dinner.

April 7th.—R.C.V.S. Council and Committee Meetings.

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PERSONAL

Mr. Herbert Henry Truman, M.R.C.V.S., of March, has just been honoured by the farmers of the Isle of Ely, who have appointed him Chairman of the County branch of the National Farmers' Union.

He has been Chairman of the March Branch of the Union since its inception 21 years ago, and was re-elected at the recent annual meeting of the branch. When the County branch was formed 16 years ago, Mr. Truman was appointed Vice-Chairman under Sir Walter West, and he held that office continuously until his election to the chairmanship this year. His appointment was proposed by Sir Walter West, who said it had never given him greater pleasure to propose anyone for an office than it gave him to put forward the name of Mr. Truman as Chairman of the branch.

Besides his veterinary practice, Mr. Truman has a farm which is a model of efficient cultivation, while he is widely known for his interest in horse-breeding. He has long been prominent in the Shire horse world, and in recent years he has identified himself with Percherons, with which he has gained notable successes in the show ring.

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R.C.V.S. OBITUARY

Edwards, John Warden, 6, Knight's Park, Kingston-on-Thames, Surrey. Graduated London, March 28th, 1882. Died February 7th, 1933, aged 71 years.

Nicholas, Albert Victor, Shelley Hotel, Shelley Road, Worthing, Sussex. Graduated London, July 10th, 1913; died January 31st, 1933, aged 47 years.

Prentice, David Shields, Claydon, Coliemore Road, Dalkley, Co. Dublin, I.F.S. Graduated Edinburgh, April 14th, 1882; died February, 1933.

Reeks, Frederick Henry, Stonegate, Spalding, Lincs. Graduated London, April 27th, 1867. Died February 11th, 1933, aged 87 years.

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Mr. J. W. Edwards, m.r.c.v.s.

Mr. Edwards had lived in Kingston for fifty years, and was very well known professionally. He retired ten years ago.

The deceased gentleman was born in Wales, and after graduation became assistant to Messrs. Moon and Barber, in Kingston. When Mr. Barber died, he bought the practice, which he retained until 1903, when he sold it to the late Mr. J. W. Whitecross. Mr. Edwards then became horse superintendent to the London and South-Western Railway. For some years he was a Surrey County Council inspector, and during his period of practice was veterinary surgeon to the Royal stud at Hampton Court.

Mr. Edwards leaves a widow, two sons and one daughter. His elder son, Mr. H. J. Edwards, now has the practice which his father sold to Mr. Whitecross. His other son, Mr. Monty Edwards, is a doctor in Baltimore, U.S.A.

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Mr. D. S. Prentice, m.r.c.v.s.

Mr. D. S. Prentice, whose death we deeply regret to record, was for many years Chief Inspector of the Veterinary Branch of the Irish Department of Agriculture. He retired from that post ten years ago, and from 1923 he was Chief Consulting Inspector for cattle, sheep and pigs for the Royal Dublin Society.

"As an organising force in the Irish livestock industry, Mr. Prentice was one of the most prominent in the country, says an Irish Free State paper. "For the past half-century his organising ability and long practical experience was largely responsible for the introduction of improvements which helped to raise the standard of cattle-breeding in Ireland. He was first appointed an Inspector of the Veterinary Department of the Irish Privy Council, and was transferred to the Department of Agriculture on the passing of the Agriculture and Technical Instruction (Ireland) Act of 1899. He was later appointed to the position of Chief Inspector.

"One of the most important acts of legislation for which Mr. Prentice was largely responsible was that for the more humane transit of animals throughout the country. Shortly before his retirement from office Mr. Prentice had constructed under his supervision the fine laboratory for veterinary purposes at Thorndale, Drumcondra, Dublin.

"Mr. Prentice carried out his duties for the Royal Dublin Society in a manner that was satisfactory both to the Society and to the exhibitors generally. The exhibitors showed a great deal of confidence in him; for they realised that he was, perhaps, more fully conversant with this work than any man in the country. His loss to the Royal Dublin Society is a severe one."

Mr. Prentice is survived by his widow, a daughter and a son. His son is a Surgeon-Commander in the Australian Navy, and his daughter is Dr. Muriel Watson.

Mr. F. H. Reeks, m.r.c.v.s.

We regret to record the death, at the great age of 87, of the esteemed head of a well-known family of Lincolnshire veterinarians in Mr. Frederick Henry Reeks, of Stonegate, Spalding.

Mr. Reeks had been ailing for some considerable time and, taking to his bed with influenza, passed away on Saturday last.

In April, 1927, Mr. Reeks celebrated the sixtieth anniversary of his graduation as a member of the Royal College of Veterinary Surgeons, and at that time there were three generations of the Reeks family who had graduated at the London college.

He was the second oldest member of the Spalding Hundred of Elloe Lodge of Freemasons, a member of the Spalding Club Company, Ltd., and of the Spalding Constitutional Club.

Mr. Reeks first went to Spalding in 1867 as an assistant to the late Mr. R. Metherell, who carried on practice in Red Lion Street, at the same premises now occupied by his son, Mr. H. C. Reeks. He remained there for two years, when he removed to Shaftesbury, in Dorsetshire, where he practised for 10 years.

Eventually, Mr. Reeks returned to Spalding to practice, first at "Linden House," in High Street, then in Westlode Street, and later in Red Lion Street. He retired about twenty years ago, and was succeeded by his son, Mr. H. Caulton Reeks, who continues the practice.

The late Mr. Reeks was married twice. There is a family of six sons, all of whom were educated at the Spalding Grammar School. They are Messrs. H. C., A. J., F., T., G., and H. Reeks.

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The Late Mrs. William Trigger

Testimony to the affection and esteem in which she was held was paid at the funeral at St. Giles' Parish Church, Newcastle, of Mrs. Hilda Anne Trigger, wife of Mr. William Trigger, F.R.C.V.S., of Langley, Sandy Lane, Newcastle, who, as recorded in our issue of February 4th, died on January 29th, after a very brief illness.

Mrs. Trigger was a daughter of the late Mr. Jesse Shirley, J.P., of Etruria, a former Mayor of Hanley, and her marriage to Mr. Trigger at Etruria Wesleyan Church was the first to be celebrated at that place of worship.

In Newcastle, she was a devoted member of the congregation at the Parish Church, and gave generous but unobtrusive support to the activities of that church, as well as to many charitable causes in the Borough. She was an active member of the Committee of the Newcastle and District Nursing Association, of which her husband is President, and took the closest and most sympathetic interest in its affairs. "Her genuine sympathy with all good causes in the district, and her domestic interests and happy disposition won for her the esteem and affection of a host of friends, and sympathy with Mr. Trigger and his family in their loss is deep and widespread," says the *Staffordshire Sentinel.*

"Mrs. Trigger was prominent and popular in athletic sporting circles, being widely known as a tennis and hockey player. She played for the Trent Vale Hockey Club, and for Staffordshire in county matches. At one time a prominent member of the Basford Tennis Club, she was a member of the Trentham Golf Club, and for a number of years of the Rhyl Golf Club."

In addition to the chief mourners, the large congregation at the Parish Church service included the Mayor of Newcastle (Sir Joseph Lamb, M.P.), Mr. H. Seddon Caldwell, M.R.C.V.S., and Mrs. Caldwell, and Mr. J. V. Allen, M.R.C.V.S.

ORIGIN OF ULCERS IN THE CÆCAL MUCOSA IN JOHNE'S DISEASE

Dr. M. J. J. Houthuis, Sliedrecht, whose auto-abstract of his thesis "Contribution to the Diagnosis and Eradication of Johne's Disease" was published in our issue of December 17th, 1932, pp. 1488-1492, writes:—"On page 1490 of the issue referred to, the following sentence occurs in connection with Case No. 16: '. . . . Their appearance (ulcers in the cæcal mucosa) is, in all probability, due to disturbance of the circulation as a result of the massive invasion of the submucosa and this case suggests itself to me as being one, admittedly rare, of secondary infection.' My opinion is, and my intention was to convey, that the ulcers ARE NOT THE RESULT OF SECONDARY INVASION, but are a direct sequel to circulatory disturbances resulting from the massive accumulation of epithelioid cells in the submucosa."

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THE HUNTERIAN SOCIETY.

Professor Sir Frederick Hobday and Major-General Sir John Moore were amongst those present on the occasion of a dinner of the Hunterian Society which took place at the Mayfair Hotel on Thursday of last week in commemoration of the 205th anniversary of the birth of John Hunter. Lieutenant-Colonel Nathan Raw, President of the Society, was in the chair, and the guests numbered nearly 300. The Lord Mayor of London, in responding to the civic toast, said that the Hunterian Society, which was founded in 1819 in the neighbourhood of Finsbury Square, had held almost all its meetings within the City bounds.

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ARMY VETERINARY SERVICE

LONDON GAZETTE—WAR OFFICE—REGULAR ARMY

Jan. 31.—The following to be Lts. (on prob.) (Feb. 1):—T. A. R. Chipperfield, B.SC., F. L. Cundell, J. Clabby, J. D. Daly, I. McLaren, J. A. Langley.

TERRITORIAL RESERVE OF OFFICERS

Feb. 10.—Lt.-Col. P. J. Simpson, D.S.O., T.D., F.R.C.V.S., having attained the age limit retires and retains his rank, with permission to wear the prescribed uniform (Feb. 11th).

Correspondence

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

All correspondence must bear the name and address of the contributor for publication.

The Editor does not hold himself responsible for the opinions of his correspondents.

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LETHAL CHAMBERS

TO THE EDITOR OF THE VETERINARY RECORD.

Sir,—The attention of some veterinarians has doubtless been drawn to an article entitled "The Death Oven," which appeared in the *Field* of January 21st, in which there was adverse criticism of the "lethal chambers" used by the animal protection societies for killing dogs and cats.

The case is a simple one—a plea for adherence to the first principle of humanitarianism, instantaneous death, or, failing that, destruction by the most rapid and rational means available to the operator, *e.g.*, prussic acid.

So long as the R.S.P.C.A., for example, adhered to that principle the fate of unwanted animals in their last moments was safeguarded: so soon as the Society forsook that principle and introduced the "lethal chamber" the door was opened to many sorts of abuses arising from ignorance, parsimony and carelessness.

In the matter of the humane slaughtering of oxen, sheep and pigs, at the charges and by the trouble of the meat trades, the R.S.P.C.A. strongly and commendably demanded adherence to the principle of instantaneous death. In the matter of cats and dogs to be killed at the charges and by the trouble of animal protection societies, the principle was abandoned in favour of Utopian devices which are objectionable from a humanitarian point of view, if only because they are so subject to abuse. The "lethal chamber" is supposed, and by many people believed, to cause in every instance a death which is easy and unobjectionable either to the animal or the operator. Its continued appeal to the animal protection societies is certainly due chiefly to the fact that the "lethal chamber" *is* less objectionable to the lay operator than are other more humane but less obscure forms of killing.

It is relatively easy to thrust a cat or dog into a steel box and to walk away with ears oblivious to its muffled mewing or stifled yelping, as it more or less slowly succumbs to a narcotic vapour. "What the eye does not see, the heart does not grieve for." To inject prussic acid, or to shoot, calls for skill and resolution.

So far as I have been able to discover, there is only one instance of a lethal chamber for killing human beings: in one State in America malefactors were, and perhaps still are, executed by pumping prussic acid vapour into a hermetically sealed chamber. The effect is similar to the injection of the acid into the thorax, and the latter method is preferable for dogs and cats, for obvious reasons. This solitary American example has not been followed by any other American State or by any civilised country.

A kindly and commonsense world still executes its malefactors by the seemingly more brutal but actually more humane means of the rope, the guillotine, the electric chair, and the bullet.

The extensive use and abuse of the "lethal chamber" are therefore limited to such defenceless victims as dogs and cats. Horses would soon kick such a thing to bits.

The agent first used by the animal protection societies in their "lethal chambers" was chloroform, and the time the animals took to die depended upon a multitude of factors.

In one instance of the abuses that may arise from abandoning principles, I saw at a depôt of an animal protection society a cat placed in a "lethal chamber" at 3 p.m. to await execution in company with others at 9 a.m. next day, to save chloroform!

The lethal agent now being tried by the R.S.P.C.A. (carbon monoxide in crude admixture) is, of course, far more rapid and certain in its effects than chloroform vapour, but it falls lamentably short of the principle of instantaneous death and is by no means so rapid or unexpected as the administration of prussic acid.

Moreover, as I pointed out in the article, no method should be used for killing adult dogs which excites violently the instinct for self-preservation by astonishment or offence to the sense of smell.

The dog, as all of us know, apprehends life in all its manifestations through his nose, and can as surely apprehend death. A lively and intelli-

gent dog thrust into a lethal chamber containing a variable proportion of deadly gases and fumes must even under the best conditions pass through a phase of horror which in effect may be more cruel than the short, sharp and unanticipated pang of prussic acid poisoning. *Under the worst conditions the operation is sheer torture.*

It will, I hope, be understood that my criticisms are directed against "lethal chambers" as generally used and not against the disposal of old or diseased dogs by means of narcotics and anæsthetics in the hands of qualified veterinary practitioners.

A qualified anæsthetist, giving the appropriate narcotics and anæsthetics and using the tools of his craft with due skill and care, can cause unconsciousness and death with no obvious distress to the animal. But this procedure may be too cumbrous and expensive for routine use, and is plainly a very different matter from putting an *unprepared* dog or cat into a closed box containing poison-gas, or a drachm or two of chloroform on a pad of cotton-wool, and leaving the animal to anæsthetise itself!

Few of us are opposed to vivisection properly conducted by controlled scientists; but the experimenting upon dogs with various sorts of poison-gas, in different degrees of concentration, by unlicensed and uncontrolled people, seems to be vivisection in an objectionable form.

In conclusion, let me repeat my belief that so long as laymen are allowed to destroy animals, safety in this matter lies, and can only lie, in uncompromising adherence to the first principle of humanitarianism: instantaneous death—a principle which is accepted for man and for all animals except the dog and cat; a principle for which the R.S.P.C.A. itself has fought long and admirably in the matter of humane slaughtering, and which it should never have abandoned. If we are going to be humane, let us give to the unwanted dog what we should like for ourselves—a sudden, unexpected end, shorn of the bitterness of death which lies in anticipation, fear and delay. A wagging tail one moment, a lifeless body the next, with no intermediate agony, whether of body or mind. It can be done: it is done in abattoirs and knackers' yards and hound-kennels every day.

Yours faithfully,
J. Wakefield Rainey, *C.B.E.*, m.r.c.v.s.

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HÆMORRHAGE AFTER CASTRATION OF THE HORSE

To the Editor of The Veterinary Record.

Sir,—It is curious to remark with what regularity the discussion of this accident recurs in the columns of the *Record* and at meetings of Veterinary Societies. I have on two occasions, years ago, in your pages given expression to the opinion that to prevent bleeding after the operation the primary condition for success is to have the spermatic artery stretched when it is divided. Subject to this condition being observed it matters very little what instrument (knife, scissors, écraseur, emasculator, etc.) is used to divide the cord. Using only a sharp knife I have operated quite successfully on large numbers of bulls and boars, and on one occasion on two adult horses.

For the horse preference should, I think, be given to the écraseur; for other animals the knife suffices. The Basutos, who are great breeders of cattle and horses, use nothing but a knife for the operation. It is to be remembered that in its passage down the cord the spermatic artery does not hold a straight course but is disposed in curves or waves, and one reason for stretching is to obliterate these waves. If the artery is stretched and is severed high up towards the canal, bleeding is not to be feared, whatever instrument is used.

Yours faithfully,
W. R. Davis, m.r.c.v.s.

The Editor acknowledges, with thanks, the receipt of the following:—

Communications from Capt. J. C. Coleman (Swindon) and Mr. J. J. Davies (West Ham).

Reports of meetings of the following Divisions, N.V.M.A., from their respective Hon. Secretaries:—North of Scotland, West of Scotland, V.M.A. of Ireland.

Diseases of Animals Acts, 1894 to 1927

SUMMARY OF RETURNS

Period.	Anthrax.		Foot-and-Mouth Disease.		Parasitic Mange.		Sheep Scab.	Swine Fever.	
	Outbreaks confirmed.	Animals attacked.	Outbreaks confirmed.	Animals slaughtered as diseased or exposed to infection.	Outbreaks reported by the Local Authorities.	Animals attacked.	Outbreaks confirmed.	Outbreaks confirmed.	Swine slaughtered.
	No.	No.	No.	No.	No.	No.	No.	No.	No.
Period 16th to 31st Jan., 1933	28	34	10	1,373	15	28	37	34	3
Corresponding period in									
1932	20	26	1	67	14	17	27	90	42
1931	27	28	2	255	13	20	47	54	12
1930	23	26	—	—	18	35	65	114	67
Total 1st January to 31st January, 1933	39	46	30	2,734	22	40	79	65	7
Corresponding period in									
1932	38	51	1	67	27	37	56	189	70
1931	46	48	2	255	25	49	80	109	22
1930	43	47	—	—	42	67	137	205	97